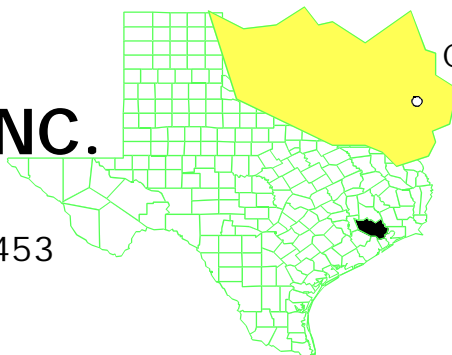


BRIO REFINING, INC. TEXAS

EPA ID# TXD980625453



EPA REGION 6
CONGRESSIONAL DIST. 22
Harris County

Other Names:
JOC Oil Aromatics, Inc.
Lowe Chemical Company

Updated: 7/17/97

Site Description

- Location:**
- The Brio Refining, Inc. site is located at 2501 Dixie Farm Road in southern Harris County, Texas.
 - The site is about 1.5 miles southwest of Interstate Highway 45 south (Gulf Freeway) at the Ellington Field exit.
 - The City of Friendswood is approximately 1-2 miles to the south.
- Population:**
- Approximately 5,000 people within one mile of site.
- Setting:**
- Nearest residence is within 1/4 mile from the site.
 - Nearest drinking water well is within 0.5 mile radius of the site, but draws water from an uncontaminated aquifer; however, it is currently not in use.
 - The site occupies approximately 58.1 acres; Dixie Farm Road divides the site into two parcels. The northern tract of site, historically used for storage purposes, and the southern tract used for processing activities.
- Hydrology:**
- Mud Gulley (a stream) borders the site to the west.
 - Surface drainage from the site is to the southwest into Mud Gulley.
 - Soils on the Brio site consist of surface clay ranging in thickness from twelve to twenty feet across the site. Below this zone is silty clay with interbedded sands. This zone is approximately 25 feet thick.
 - Below the sand channel zone is a rich clay zone with an average thickness of ten feet.
 - Below the clay zone, a thick sand is found across the site at about 50'-55' below the surface. The sand thickness is approximately 40'.
 - Two water-bearing zones have been identified in the immediate subsurface of the site. The uppermost water-bearing zone is the stratum referred to above as the sand channel zone, and is found at depths ranging from 14.5'-21.5' and extending to depths of 40'-45'. The direction of flow is toward Mud Gulley (southwest).
 - The second water-bearing zone is the stratum termed the "50-foot sand". This aquifer is found at depths of between 52' and 61.5' to depths of between 92.5 and 99' below the surface. There is a positive vertical hydraulic gradient from the deeper water-bearing zone toward the shallow water-bearing zone in certain portions of the site.

Wastes and Volumes

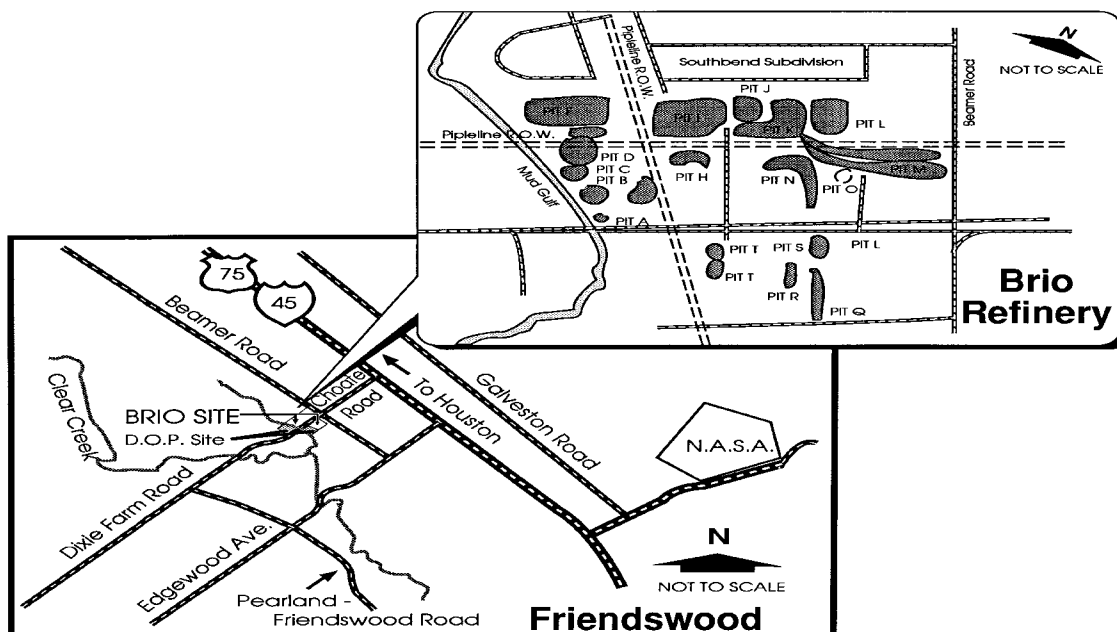
- The principal pollutants are found in various on-site pits.
- Pollutants characteristic of the site include styrene tars, vinyl chloride, chlorinated solvent residues, metallic catalyst, and fuel oil residues.
- Contaminants can be found at concentrations greater than 100K mg/kg.
- Soil contamination - 700,000 cubic yards of measurable amounts of contaminants.
- Soil contamination in excess of Endangerment Assessment action levels - 62,000 cubic yards.
- Sludges and liquids in soils may account for an additional 40,000 cubic yards.

Site Assessment and Ranking

| NPL LISTING HISTORY | |
|---------------------|---------|
| Site HRS Score: | 50.38 |
| Proposed Date: | 10/5/84 |
| Final Date: | 3/31/89 |
| NPL Update: | No. 2 |

- The Potentially Responsible Parties (PRPs) erected a fence around the site in January 1985.

Site Map and Diagram



The Remediation Process

Site History:

- Operations began at the Brio Refining site in 1957.
- The site operations included by-product recycling, copper catalyst regeneration, petrochemical recovery, and jet fuel processing. Styrene and vinyl chloride tars stored in open unlined impoundment waiting for processing.
- The site was owned and operated under several different names until Brio Refining, Inc. declared bankruptcy in 1982.

Health Considerations:

- On-site soil and ground water contamination by 1,2 dichloroethane, 1,1,2 trichloroethane, vinyl chloride, fluorene, anthracene/phenanthrene, pyrene and other hydrocarbons and copper exists to depths greater than 18 feet. Air releases have been documented for 1,1,2 trichloroethane, 1,2 dichloroethane, and vinyl chloride along with other organics.
- Contaminated ground water discharges to Mud Gully which flows into Clear Creek. Interim ground water recovery is required to prevent human exposure to contaminated fish. Texas Department of Health has posted fish consumption advisory.

Other Environmental Risks:

- A housing development bordered the site on the north. The subdivision was demolished under a third party action.
- A municipal drinking water well located less than 0.5 mile from the site is 1200 feet deep.
- Shallow ground water contamination is evident (primarily 20'-45' aquifer, some reported in 50'-100' aquifer).

Record of Decision

Signed: March 31, 1988

Ground Water:

- Treatment of shallow ground water by barrier wells and pumping and treating the shallow aquifer; dense non-aqueous phase liquids (DNAPL) recovery.

Soil Treatment:

- Treatment of affected materials and soils using thermal destruction (incineration). The incineration remedy is currently under evaluation.

Process Vessels and Equipment

- Dismantling of process facility, impose deed restrictions and control site access.

| <u>Other Remedies Considered</u> | <u>Reasons Not Chosen</u> |
|----------------------------------|--|
| 1. No Action | Fails to provide long-term protection of public health and the environment. |
| 2. Cap and Cover | Does not achieve reduction of mobility, toxicity and volume to the extent provided by incineration and biotreatment. |
| 3. On-site landfill Vault | Same as Cap, above. |
| 4. Offsite Disposal | EPA's least preferred alternative when alternative treatment technologies are available. |

Community Involvement

- Community Involvement Plan: Developed 12/84 , revised 8/85, 8/89, EPA revision 6/94.
- Open houses and workshops: 10/84, 5/85, 4/86, 12/88, 4/89, 1/90, 8/91, 11/93, 2/94, 7/94.
- Mayor's Community Leaders Meetings: 3/90, 4/90, 5/90, 6/90, 7/90, 8/90, 1/91.
- Original Proposed Plan Fact Sheet and Public Meeting: 1/88
- Original ROD Fact Sheet: 5/88
- Fact Sheets: 9/85, 9/88, 10/88, 8/89, 2/90, 4/90 (2), 12/90, 1/91, 5/91, 8/91, 9/91, 12/92, 11/93, 7/94, 8/94, 6/95.
- Satellite Office: Opened: 8/28/91, Total contacts to date: Over 2,000 citizens and officials; relocated 11/93.
- Citizens on site mailing list: 827
- Constituency Interest: High level of concern with ground water contamination, health, property values. Citizens serve on Community Advisory Group, which meets regularly.

- Site Repositories:

1. San Jacinto College-South Campus, 13735 Beamer Rd., Houston, TX 77089
2. EPA/Brio Satellite Office, 10904 Scarsdale Blvd. #295, Houston, Texas 77089

- Community Advisory Group (CAG) established 9/94.

CAG meetings monthly, 1994-95
CAG submitted application for new TAG, 2/95

Technical Assistance Grant

- Availability Notice: 6/22/89
- Letters of Intent Received:
 1. South Belt Superfund Coalition (SBSC) - 6/1/89
 2. Homes, Environment and Lives in Peril (HELP) - 7/28/89
- Final Application Received: HELP submitted final application on 12/90.
- Grant Award: 1/31/91
- Current Status: Grant funds expended; close-out completed 9/94.
- Technical Advisor: Joel Hirshhorn

Supplemental TAG:

- Supplemental TAG made available by EPA 12/94 (site complexity & community request).
- Availability Notices: 12/94 in area newspapers.
- CAG submitted application for Supp. TAG: 2/11/95
- CAG submitted intergovernmental review: 4/95
- Grant Award: 6/7/95
- CAG runs solicitation for Technical Advisor notice: 7/95
- Technical Advisor: Joel Hirschhorn (selected 8/95)

Fiscal and Program Management ---

- **Remedial Project Manager (EPA):** John Meyer, 214-665-6742, Mail Code: 6SF-LL
- **State Contact:** Ashby McMullen (TNRCC), 512-239-2595
- **Community Involvement Coordinator (EPA):** Donn Walters, 214-665-6483, Mail Code: 6SF-P
- **Attorney (EPA):** Anne Foster, 214-665-2169, Mail Code: 6SF-DL
- **State Coordinator (EPA):** Shirley Workman, 214-665-8522, Mail Code: 6SF-AT
- **Prime Contractor:** GSI (for PRPs)

Cost Recovery: PRP Lead (Enforcement)

- PRPs Identified: Over 30
- Viable PRP: Brio Site Task Force (BTSF)
- A Consent Order was entered into with PRPs in 6/85 for conduct of the RI/FS.
- Administrative Order on Consent signed on 6/29/89, to cover dismantling of the process facility.
- On 3/28/91, DOJ file a cost recovery claim against the non-settlers.
- Consent Decree lodged: 8/89, public comment period: 8/15/89 - 12/30/89
- Notice of CD Hearing: 12/90; CD Entered: 4/91

Present Status and Issues ---

- The installation of a fence and the dismantling of the process equipment have reduced the potential for exposure to hazardous wastes at the Brio Refining, Inc. site, making it safer while it awaits further cleanup activities.
- A buyout of South Bend subdivision by developer is complete (vis-a-vis court settlement of class-action lawsuit by citizens) and demolition of the homes is complete.
- The incineration remedy is on hold pending completion of a focused feasibility study that will evaluate containment.
- A Proposed Plan for an Amended Remedy was released on April 4, 1997. The plan proposes the use of a cap and sub-grade barrier wall to replace the incineration remedy selected in 1988. The public comment period runs from April 7 to May 7, 1997.

Benefits ---

- Approximately 100,000 gallons of highly contaminated sludges and solids have been removed from the site through early actions reducing the risk of combustion in the tanks.
- Over two million gallons of ground water have been treated and approximately 20,000 gallons of DNAPL has been removed from the site reducing discharge to Mud Gully to safe levels. The reduction in discharges has prevented a recreational contact ban in the receiving water body of Clear Creek.